

**B. The specification was objected to due to informalities.**

Specifically, the Office Action points out that both the removable plate and the computer were referred to as 180, and both the tow hitch and probe were referred to as 140. The text of the specification has been amended herein to alter references to the computer to 199, and references to the probe as 240, as in the amended drawings. It is therefore believed that the specification is now non-objectable.

**C. Claims 2-13 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,003,455 to Flamme et al. in view of U.S. Patent No. 5,978,723 to Hale et al.**

Specifically, the examiner asserts that it would have been obvious to one of ordinary skill in the art to realize that if it is desirable to dispense pH buffers to a field, then one must determine the current pH levels before adding the buffers. Therefore, the examiner asserts, it would have been obvious to employ the teachings of Hale to modify the apparatus of Flamme to include a sensor or probe that allows for the testing and determination of the pH levels of the field in order to plot a map of the pH levels of that field.

“To establish a *prima facie* case of obviousness, three basic criteria must be met. First there must be some suggestion or motivation . . . to modify the reference. Second, there must be a reasonable expectation of success. Finally, the prior art [references] must teach or suggest all the claim limitations.” MPEP § 2143. “If [a] proposed modification would change the principle of operation of the prior art invention being modified, then

the teachings of the references are not sufficient to render the claims *prima facie* obvious.” MPEP § 2143.01 (quoting *In re Ratti*, 270 F.2d 810).

It is respectfully submitted that the proposed combination would not have had a reasonable expectation of success, and would change the principle of operation of the Flamme apparatus. Those skilled in the art would have appreciated that measuring pH requires a finite amount of time. Therefore, when a moving apparatus takes a sample and makes a pH measurement it will not be at the same location when the measurement was completed as it was when the sample was taken. Therefore, if the apparatus adjusted operating parameters to adjust the application of pH buffers based on the pH measurements, it would be applying information regarding one area to some other area of the field. Consequently, the proposed modification would result in the application of pH buffers based on incorrect information. Therefore, there would have been no reasonable expectation of success for the proposed modification.

The Flamme reference employs an open loop control system in order to regulate one or more operating parameters during operation. However, the purpose for doing so is to permit a constant application of materials (e.g. seeds, pH buffers) despite the fact that environmental factors, such as weather or “droop,” may change during operation of the vehicle. (See col. 2 lines 10-20). Thus, the operating parameters are changed in order to keep the rate of application of the materials in line with a desired application rate that has been previously established by the operator. (See col. 1, lines 49-50.)

Although the Flamme reference does discuss the use of site-specific information to control the depth or force of the ground opening tool, nowhere does it discuss using such site-specific data for the application of pH buffers. Therefore, the Flamme reference

only discusses the variation of operating parameters with regard to the application of pH buffers for the purpose of maintaining a constant and pre-selected rate of application. Thus, the proposed modification of the Flamme apparatus would change its principle of operation, from adjusting operating parameters for the purpose of maintaining a *pre-selected* and *constant* rate of application, to adjusting operating parameters for the purpose of *simultaneously selecting* a *variable* rate of application. It is therefore respectfully submitted that the proposed modification is not sufficient to render the claims *prima facie* obvious.

Furthermore, independent claims 2 and 3 specifically require “a sampling platform for collecting soil from pre-selected soil depths.” Claims 4-11 depend from claim 3, and therefore include each of its limitations, including the one recited above. It is respectfully submitted that neither the Flamme reference nor the Hale reference teach or suggest this limitation, and that they therefore do not support *prima facie* obviousness of these claims.

Regarding claims 3-11, claim 3 specifically requires “an actuator for moving the sampling platform between at least an extended position in which a soil sample is collected and a retracted position in which the soil sample is in contact with the probe.” Claims 4-11 depend from claim 3, and therefore include each of its limitations, including the one recited above. It is respectfully submitted that neither the Flamme reference nor the Hale reference teach or suggest this limitation, and that they therefore do not support *prima facie* obviousness of these claims.

Regarding claims 12 and 13, for the reasons discussed above, it would not have been obvious to one of the ordinary skill in the art to modify the apparatus of Flamme as proposed. It is respectfully submitted that the proposed modification therefore does not support *prima facie* obviousness of these method claims.

For the foregoing reasons, Applicants respectfully submit that the present application is in condition for allowance, and respectfully request such action. Should it facilitate allowance of the application, the Examiner is invited to telephone the undersigned attorney. It is not believed that any extensions of time are necessary for the filing of this amendment; however if such extensions are necessary, please provide such extensions and charge any fees which may be due to Deposit Account No. 23-3030, but not to include any payment of issue fees.

Respectfully submitted,

By



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